

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

**In re Application of:**

)

**BURFIELD, et al.**

)

**Serial Number: to be Assigned**

)

**Art Unit:**

**Filed: Concurrently**

)

**Examiner:**

**For: OBJECT-BASED NUMERIC ANALYSIS ENGINE**

)

**Assistant Commissioner for Patents  
Washington, D.C. 20231**

**ASSOCIATE POWER OF ATTORNEY**

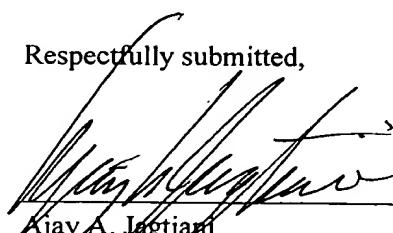
Sir:

I hereby appoint Mark Guttag, Registration Number 33,057, as my associate attorney in the above-captioned application, with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to receive the patent and to transact all business in the Patent Office connected therewith.

However, please continue to address all future communications to the undersigned attorney at the following:

Ajay A. Jagtiani  
**JAGTIANI & ASSOCIATES**  
Democracy Square Business Center  
10379-B Democracy Lane  
Fairfax, Virginia 22030

Respectfully submitted,

  
Ajay A. Jagtiani  
Registration Number 35,205

**JAGTIANI & ASSOCIATES**  
Democracy Square Business Center  
10379-B Democracy Lane  
Fairfax, Virginia 22030  
(703) 591-2664

October 9, 1998

## DECLARATION FOR PATENT APPLICATION AND APPOINTMENT OF ATTORNEY

As a below-named inventor, I hereby declare that my residence, post office address and citizenship are as stated below next to my name; I believe that I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention (Design, if applicable) entitled: **OBJECT-BASED NUMERIC ANALYSIS ENGINE**, the specification of which (check one):

is attached hereto.

was filed on \_\_\_\_\_ as Application Serial No. \_\_\_\_\_, and was amended on \_\_\_\_\_ (if applicable).

was filed on \_\_\_\_\_ as International Application (PCT) No. \_\_\_\_\_, and was amended on \_\_\_\_\_ (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment(s) referred to above. I acknowledge the duty to disclose information which is material to the examination of this application in accordance with *Title 37, Code of Federal Regulations, § 1.56(a)*. I hereby claim foreign priority benefits under *Title 35, United States Code § 119* of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which the priority is claimed.

## PRIOR FOREIGN APPLICATION(S)

| NUMBER | COUNTRY | DAY/MONTH/YEAR FILED | PRIORITY CLAIMED   |
|--------|---------|----------------------|--|
|        |         |                      | <input type="checkbox"/> Yes <input type="checkbox"/> No |
|        |         |                      | <input type="checkbox"/> Yes <input type="checkbox"/> No |

I hereby claim the benefit under *Title 35, United States Code, § 120* of any United States application(s) or PCT international application(s) designating The United States of America listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in that/those prior application(s) in the manner provided by the first paragraph of *Title 35, United States Code, § 112*, I acknowledge the duty to disclose material information as defined in *Title 37, Code of Federal Regulations, § 1.56(a)* which occurred between the filing date of the prior application(s) and the national or PCT international filing date of this application:

| APPLICATION NUMBER | FILING DATE | STATUS (Patented, Pending or Abandoned) |
|--------------------|-------------|---|
|                    |             |   |
|                    |             |   |

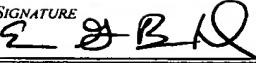
I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine, or imprisonment, or both, under *Section 1001 of Title 18 of the United States Code*, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

POWER OF ATTORNEY: I (We) hereby appoint as my (our) attorneys, with full powers of substitution and revocation, to prosecute this application and transact all business in the Patent and Trademark Office connected therewith: Ajay A. Jagtiani, Registration Number 35,205.

Send correspondence to: **JAGTIANI & ASSOCIATES**  
10379-B Democracy Lane  
Fairfax, Virginia 22030

Telephone calls to: Ajay A. Jagtiani  
(703) 591-2664

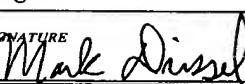
See following pages for additional joint inventors.

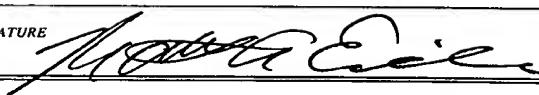
|  |  |
|--|--|
| <i>Full Name of First or Sole Inventor</i><br><b>BURFIELD, Evan G.</b> | <i>Citizenship</i><br>United States  |
| <i>Residence Address - Street</i><br><b>9852 Fairfax Square #225</b>   | <i>Post Office Address Street</i><br><b>QED Innovations, 4013 Williamsburg Court</b>                     |
| <i>City</i><br><b>Fairfax</b>  | <i>City</i><br><b>Fairfax</b>  |
| <i>State or Country</i><br><b>Virginia</b>                             | <i>State or Country</i><br><b>Virginia</b>   |
| <i>Zip</i><br><b>22031</b>   | <i>Zip</i><br><b>22032</b>   |
| <i>DATE</i><br><b>10/13/98</b>   | <i>SIGNATURE</i><br> |

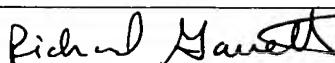
## DECLARATION FOR PATENT APPLICATION AND APPOINTMENT OF ATTORNEY

Page 2

|   |   |                                     |                     |
|---|---|-------------------------------------|---------------------|
| Full Name of Additional Joint Inventor<br><b>CHANG, Chia Chen</b> | Citizenship<br>United States  |                                     |                     |
| Residence Address - Street<br><b>804 Lawton Street</b>            | Post Office Address Street<br><b>QED Innovations, 4013 Williamsburg Court</b>                   |                                     |                     |
| City<br><b>McLean</b>   | City<br>Fairfax   |                                     |                     |
| State or Country<br><b>Virginia</b>                               | Zip<br><b>22101</b>   | State or Country<br><b>Virginia</b> | Zip<br><b>22032</b> |
| DATE<br><b>10/13/98</b>   | SIGNATURE<br> |                                     |                     |

|  |   |                                     |                     |
|--|---|-------------------------------------|---------------------|
| Full Name of Additional Joint Inventor<br><b>DRISSEL, Mark</b> | Citizenship<br>United States  |                                     |                     |
| Residence Address - Street<br><b>6314 Kiteline Court</b>       | Post Office Address Street<br><b>QED Innovations, 4013 Williamsburg Court</b>                   |                                     |                     |
| City<br><b>Columbia</b>  | City<br>Fairfax   |                                     |                     |
| State or Country<br><b>Maryland</b>                            | Zip<br><b>21044</b>   | State or Country<br><b>Virginia</b> | Zip<br><b>22032</b> |
| DATE<br><b>10/13/98</b>  | SIGNATURE<br> |                                     |                     |

|   |   |                                     |                     |
|---|---|-------------------------------------|---------------------|
| Full Name of Additional Joint Inventor<br><b>EICHLER, Matthew</b> | Citizenship<br>United States  |                                     |                     |
| Residence Address - Street<br><b>2629 Washington Blvd.</b>        | Post Office Address Street<br><b>QED Innovations, 4013 Williamsburg Court</b>                     |                                     |                     |
| City<br><b>Arlington</b>  | City<br>Fairfax   |                                     |                     |
| State or Country<br><b>Virginia</b>                               | Zip<br><b>22201</b>   | State or Country<br><b>Virginia</b> | Zip<br><b>22032</b> |
| DATE<br><b>10/13/98</b>   | SIGNATURE<br> |                                     |                     |

|   |   |                                     |                     |
|---|---|-------------------------------------|---------------------|
| Full Name of Additional Joint Inventor<br><b>GARRETT, Richard</b> | Citizenship<br>United States  |                                     |                     |
| Residence Address - Street<br><b>9852 Fairfax Square #225</b>     | Post Office Address Street<br><b>QED Innovations, 4013 Williamsburg Court</b>                     |                                     |                     |
| City<br><b>Fairfax</b>  | City<br>Fairfax   |                                     |                     |
| State or Country<br><b>Virginia</b>                               | Zip<br><b>22031</b>   | State or Country<br><b>Virginia</b> | Zip<br><b>22032</b> |
| DATE<br><b>10/13/98</b>   | SIGNATURE<br> |                                     |                     |

See following pages for additional joint inventors.

## DECLARATION FOR PATENT APPLICATION AND APPOINTMENT OF ATTORNEY

Page 2

|  |   |                                     |                     |
|--|---|-------------------------------------|---------------------|
| Full Name of Additional Joint Inventor<br><b>GROAT, Robert</b> | Citizenship<br>United States  |                                     |                     |
| Residence Address - Street<br><b>45862 Aberdeen Lane</b>       | Post Office Address Street<br><b>QED Innovations, 4013 Williamsburg Court</b> |                                     |                     |
| City<br><b>Valley Lee</b>                                      | City<br>Fairfax   |                                     |                     |
| State or Country<br><b>Maryland</b>                            | Zip<br><b>20692</b>   | State or Country<br><b>Virginia</b> | Zip<br><b>22032</b> |
| DATE<br><b>10/13/98</b>  | <i>Robert Fred Groat Jr. Jr.</i>  |                                     |                     |

|  |   |                                     |                     |
|--|---|-------------------------------------|---------------------|
| Full Name of Additional Joint Inventor<br><b>KIPP, Neill</b> | Citizenship<br>United States  |                                     |                     |
| Residence Address - Street<br><b>319 New Kent Road</b>       | Post Office Address Street<br><b>QED Innovations, 4013 Williamsburg Court</b> |                                     |                     |
| City<br><b>Blacksburg</b>                                    | City<br>Fairfax   |                                     |                     |
| State or Country<br><b>Virginia</b>                          | Zip<br><b>24060</b>   | State or Country<br><b>Virginia</b> | Zip<br><b>22032</b> |
| DATE<br><b>10/13/98</b>                                      | <i>X</i>  |                                     |                     |

|  |   |                                     |                     |
|--|---|-------------------------------------|---------------------|
| Full Name of Additional Joint Inventor<br><b>RAPP, Perry Russell</b> | Citizenship<br>United States  |                                     |                     |
| Residence Address - Street<br><b>48278 Keel Drive</b>                | Post Office Address Street<br><b>QED Innovations, 4013 Williamsburg Court</b> |                                     |                     |
| City<br><b>Lexington Park</b>  | City<br>Fairfax   |                                     |                     |
| State or Country<br><b>Maryland</b>                                  | Zip<br><b>20653</b>   | State or Country<br><b>Virginia</b> | Zip<br><b>22032</b> |
| DATE<br><b>10/13/98</b>  | <i>X</i>  |                                     |                     |

|  |                            |
|--|----------------------------|
| Full Name of Additional Joint Inventor | Citizenship                |
| Residence Address - Street             | Post Office Address Street |
| City                                   | City                       |
| State or Country                       | State or Country           |
| Zip                                    | Zip                        |
| DATE                                   | SIGNATURE                  |

See following pages for additional joint inventors.

ATTORNEY DOCKET NO.: NIST-0006-1

## DECLARATION FOR PATENT APPLICATION AND APPOINTMENT OF ATTORNEY

Page 2

|  |  |                              |              |
|--|--|------------------------------|--------------|
| Full Name of Additional Joint Inventor<br><b>GROAT, Robert</b> | Citizenship<br>United States   |                              |              |
| Residence Address - Street<br>45862 Aberdeen Lane              | Post Office Address Street<br>QED Innovations, 4013 Williamsburg Court |                              |              |
| City<br>Valley Lee   | City<br>Fairfax  |                              |              |
| State or Country<br>Maryland                                   | Zip<br>20692   | State or Country<br>Virginia | Zip<br>22032 |
| Date<br>10/13/98   | Signature<br><i>Robert Groat, Esq., Jr.</i>                            |                              |              |

|  |  |                              |              |
|--|--|------------------------------|--------------|
| Full Name of Additional Joint Inventor<br><b>KIPP, Neill</b> | Citizenship<br>United States   |                              |              |
| Residence Address - Street<br>319 New Kent Road              | Post Office Address Street<br>QED Innovations, 4013 Williamsburg Court |                              |              |
| City<br>Blacksburg   | City<br>Fairfax  |                              |              |
| State or Country<br>Virginia                                 | Zip<br>24060   | State or Country<br>Virginia | Zip<br>22032 |
| Date<br>10/13/98   | Signature<br><i>X</i>  |                              |              |

|  |  |                              |              |
|--|--|------------------------------|--------------|
| Full Name of Additional Joint Inventor<br><b>RAPP, Perry Russell</b> | Citizenship<br>United States   |                              |              |
| Residence Address - Street<br>48278 Keel Drive                       | Post Office Address Street<br>QED Innovations, 4013 Williamsburg Court |                              |              |
| City<br>Lexington Park   | City<br>Fairfax  |                              |              |
| State or Country<br>Maryland   | Zip<br>20653   | State or Country<br>Virginia | Zip<br>22032 |
| Date<br>10/13/98   | Signature<br><i>Perry Rapp</i>   |                              |              |

|  |                            |                  |     |
|--|----------------------------|------------------|-----|
| Full Name of Additional Joint Inventor | Citizenship                |                  |     |
| Residence Address - Street             | Post Office Address Street |                  |     |
| City                                   | City                       |                  |     |
| State or Country                       | Zip                        | State or Country | Zip |
| Date                                   | Signature                  |                  |     |

 See following pages for additional joint inventors.

OCT. 15 '98 (THU) 15:21 VTIC

TEL: 540 231 7366

P. 001

10-15-1998 3:10PM FROM

P. 1

ATTORNEY DOCKET NO.: NIST-2006-1

## DECLARATION FOR PATENT APPLICATION AND APPOINTMENT OF ATTORNEY

Page 2

|  |  |                              |              |
|--|--|------------------------------|--------------|
| Full Name of Additional Joint Inventor<br><b>GROAT, Robert</b> | Citizenship<br>United States   |                              |              |
| Residence Address - Street<br>45862 Aberdeen Lane              | Post Office Address Street<br>QED Innovations, 4013 Williamsburg Court |                              |              |
| City<br>Valley Lee   | City<br>Fairfax  |                              |              |
| State or Country<br>Maryland                                   | Zip<br>20692   | State or Country<br>Virginia | Zip<br>22032 |
| DATE<br>10/13/98   | SIGNATURE<br><i>Robert Groat, Esq.</i>                                 |                              |              |

|   |  |                              |              |
|---|--|------------------------------|--------------|
| Full Name of Additional Joint Inventor<br><b>KIPP, Nell</b> | Citizenship<br>United States   |                              |              |
| Residence Address - Street<br>319 New Kent Road             | Post Office Address Street<br>QED Innovations, 4013 Williamsburg Court |                              |              |
| City<br>Blacksburg  | City<br>Fairfax  |                              |              |
| State or Country<br>Virginia                                | Zip<br>24060   | State or Country<br>Virginia | Zip<br>22032 |
| DATE<br>10/13/98  | SIGNATURE<br><i>Nell Kipp</i>  |                              |              |

|  |  |                              |              |
|--|--|------------------------------|--------------|
| Full Name of Additional Joint Inventor<br><b>RAPP, Party Russell</b> | Citizenship<br>United States   |                              |              |
| Residence Address - Street<br>43278 Keel Drive                       | Post Office Address Street<br>QED Innovations, 4013 Williamsburg Court |                              |              |
| City<br>Lexington Park   | City<br>Fairfax  |                              |              |
| State or Country<br>Maryland   | Zip<br>20653   | State or Country<br>Virginia | Zip<br>22032 |
| DATE<br>10/13/98   | SIGNATURE  |                              |              |

|  |                            |                  |     |
|--|----------------------------|------------------|-----|
| Full Name of Additional Joint Inventor | Citizenship                |                  |     |
| Residence Address - Street             | Post Office Address Street |                  |     |
| City                                   | City                       |                  |     |
| State or Country                       | Zip                        | State or Country | Zip |
| DATE                                   | SIGNATURE                  |                  |     |

See following pages for additional joint inventors.

|   |  |                      |
|---|--|----------------------|
| Applicant or Patentee: BURFIELD, et al.     |  | Docket # QED1-0001-1 |
| Serial or Patent Number:                    |  | Examiner:            |
| Filed or Issued: October 15, 1998           |  | Att. Unit:           |
| Title: OBJECT-BASED NUMERIC ANALYSIS ENGINE |  |                      |

**VERIFIED STATEMENT (DECLARATION) BY A SMALL BUSINESS CONCERN  
CLAIMING SMALL ENTITY STATUS UNDER 37 C.F.R. §§ 1.9(f) AND 1.27(c)**

I hereby declare that I am:

the owner of the small business concern identified below  
 an official of the small business concern empowered to act on behalf of the concern identified below:

Name of Concern: QED Innovations

Address: 4013 Williamsburg Court, Fairfax, VA 22032

I hereby declare that the above identified small business concern qualifies as a small business concern as defined in *13 CFR 121.3*, and reproduced in *37 CFR 1.9(d)*, for purposes of paying reduced fees under *section 41(a) and (b) of Title 35, United States Code*, in that the number of employees of the concern, including those of its affiliates, **does not exceed 500 persons**. For purposes of this statement, (1) the number of employees is the average over the previous fiscal year of the concern of the persons employed on a full-time, part-time or temporary basis during each of the pay periods of the fiscal year, and (2) concerns are affiliates of each other when either directly or indirectly one concern controls or has the power to control the other, or a third party or parties controls or has the power to control both.

I hereby declare that rights under contract of law have been conveyed to and remain with the small business concern identified above with regard to the matter described in:

The Specification filed herewith, with the title as listed above  
 The Patent application identified above  
 The PCT International patent application identified above.  
 The patent number identified above

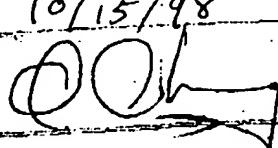
If the rights held by the above identified small business concern are not exclusive, each individual, concern or organization having rights to the invention must file separate verified statements averring to their status as small entities, and no rights to the invention are held by any person, other than the inventor, who would not qualify as an independent inventor under *37 CFR 1.9(e)*, if that person made the invention, or by any concern who would not qualify as a small business concern under *37 CFR 1.9(d)*, or a nonprofit organization under *37 CFR 1.9(e)*. Each person or organization having any rights in the invention is listed below:

No such person, concern or organization.  
 Each such person, concern or organization as listed below:

|  |  |
|--|--|
|  | <input type="checkbox"/> Individual<br><input checked="" type="checkbox"/> Small Business Concern<br><input type="checkbox"/> Nonprofit Organization |
|--|--|

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate *37 CFR 1.28(b)(ii)*.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine, or imprisonment, or both, under *section 1001 of Title 35 of the United States Code*, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which the verified statement is directed.

|  |   |
|--|---|
| Chia Chen Chang, President<br>4013 Williamsburg Court, Fairfax, VA 22032 | 10/15/98<br> |
|--|---|

OCT. -15' 98 (THU) 15:21 VTIC

TEL: 540 231 7366

P. 002

10-15-1998 3:11PM FROM

P. 2

### ASSIGNMENT

WHEREAS, Nelli Kipp, whose post office addresses appear below (hereinafter referred to as ASSIGNOR), has invented certain new and useful improvements in an OBJECT-BASED NUMERIC ANALYSIS ENGINE (hereinafter referred to as THE INVENTION) for which an application for United States Letters Patent was filed October 15, 1998, Serial Number: \_\_\_\_\_;

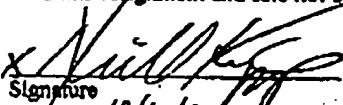
WHEREAS, QED Innovations, whose post office address is 4013 Williamsburg Court, Fairfax Virginia, (hereinafter referred to as ASSIGNEE), is desirous of acquiring the entire right, title and interest in and to the same in the United States and throughout the world;

NOW, THEREFORE, for good and valuable consideration, receipt of which is hereby acknowledged, we, ASSIGNOR, by these presents do sell, assign and transfer until said ASSIGNOR, the entire right, title and interest in and to said invention and application throughout the United States of America, including any and all United States Letters Patent granted on any division, continuation, continuation-in-part and reissue of said application; and the entire right, title and interest in and to said invention throughout the world, including the right to apply for patents and inventor certificates in respect thereof and to claim priority pursuant to rights accorded ASSIGNOR under the terms of the Paris International Convention and all other available international conventions and treaties; and the entire right, title and interest in and to any and all patents, patents of addition, utility models, patents of importation, revalidation patents and inventor certificates which may be granted throughout the world in respect of said invention.

ALSO, ASSIGNOR hereby agrees to execute any documents that legally may be required in connection with the filing, prosecution and maintenance of said application or any other patent application(s) or inventor certificate(s) in the United States and in foreign countries for said invention, including additional documents that may be required to affirm the rights of ASSIGNEE in and to said invention, all without further consideration. ASSIGNOR also agrees, without further consideration and at ASSIGNEE's expense, to identify and communicate to ASSIGNEE at ASSIGNEE's request documents and information concerning the invention that are within ASSIGNOR's possession or control, and to provide further assurances and testimony on behalf of ASSIGNEE that lawfully may be required of ASSIGNOR in respect of the prosecution, maintenance and defense of any patent application or patent encompassed within the terms of this instrument. ASSIGNOR's obligations under this instrument shall extend to ASSIGNOR's heirs, executors, administrators and other legal representatives.

ASSIGNOR hereby authorizes and requests the Commissioner of Patents and Trademarks to issue any and all United States Letters Patent referred to above to ASSIGNEE of the entire right, title and interest in and to the same, for ASSIGNOR's sole use and behalf; and for the use and behalf of ASSIGNEE's legal representatives and successors, to the full end of the term for which such Letters Patent may be granted, as fully and entirely as the same would have been held by ASSIGNOR had this assignment and sale not been made.

Inventor: Nelli Kipp  
Address: 319 New Kent Road  
Blacksburg, Virginia 24060

  
Signature \_\_\_\_\_  
Date: 10/15/98  
SSN: 260-76-0637  
Notarization preferred but not required

State of \_\_\_\_\_  
City/County of \_\_\_\_\_

Before me personally appeared and said \_\_\_\_\_, and  
acknowledges this instrument to be his (her) free act and dated this \_\_\_\_\_, and  
day of \_\_\_\_\_

My commission expires: \_\_\_\_\_

Notary Public

ASSIGNMENT

WHEREAS, Perry Russell Rapp, whose post office addresses appear below (hereinafter referred to as ASSIGNOR), has invented certain new and useful improvements in an OBJECT-BASED NUMERIC-ANALYSIS ENGINE (hereinafter referred to as THE INVENTION) for which an application for United States Letters Patent was filed October 15, 1998, Serial Number: \_\_\_\_\_;

WHEREAS, QED Innovations, whose post office address is 4013 Williamsburg Court, Fairfax Virginia, (hereinafter referred to as ASSIGNEE), is desirous of acquiring the entire right, title and interest in and to the same in the United States and throughout the world;

NOW, THEREFORE, for good and valuable consideration, receipt of which is hereby acknowledged, we, ASSIGNOR, by these presents do sell, assign and transfer until said ASSIGNEE, the entire right, title and interest in and to said invention and application throughout the United States of America, including any and all United States Letters Patent granted on any division, continuation, continuation-in-part and reissue of said application; and the entire right, title and interest in and to said invention throughout the world, including the right to apply for patents and inventor certificates in respect thereof and to claim priority pursuant to rights accorded ASSIGNOR under the terms of the Paris International Convention and all other available international conventions and treaties; and the entire right, title and interest in and to any and all patents, patents of addition, utility models, patents of importation, revalidation patents and inventor certificates which may be granted throughout the world in respect of said invention.

ALSO, ASSIGNOR hereby agrees to execute any documents that legally may be required in connection with the filing, prosecution and maintenance of said application or any other patent application(s) or inventor certificate(s) in the United States and in foreign countries for said invention, including additional documents that may be required to affirm the rights of ASSIGNEE in and to said invention, all without further consideration. ASSIGNOR also agrees, without further consideration and at ASSIGNEE's expense, to identify and communicate to ASSIGNEE at ASSIGNEE's request documents and information concerning the invention that are within ASSIGNOR's possession or control, and to provide further assurances and testimony on behalf of ASSIGNEE that lawfully may be required of ASSIGNOR in respect of the prosecution, maintenance and defense of any patent application or patent encompassed within the terms of this instrument. ASSIGNOR's obligations under this instrument shall extend to ASSIGNOR's heirs, executors, administrators and other legal representatives.

ASSIGNOR hereby authorizes and requests the Commissioner of Patents and Trademarks to issue any and all United States Letters Patent referred to above to ASSIGNEE of the entire right, title and interest in and to the same, for ASSIGNOR's sole use and behalf; and for the use and behalf of ASSIGNEE's legal representatives and successors, to the full end of the term for which such Letters Patent may be granted, as fully and entirely as the same would have been held by ASSIGNOR had this assignment and sale not been made.

Inventor: Perry Russell Rapp  
Address: 49278 Ked Drive  
Lexington Park, Maryland 20653

  
Signature \_\_\_\_\_  
Date: Oct 15, 1998  
SSN: \_\_\_\_\_  
Notarization preferred but not required

State of \_\_\_\_\_  
City/County of \_\_\_\_\_

Before me personally appeared and said \_\_\_\_\_, and  
acknowledges this instrument to be his (her) free act and deed this \_\_\_\_\_ day of \_\_\_\_\_

Notary Public

My commission expires: \_\_\_\_\_

ASSIGNMENT

WHEREAS, Evan G. Burfield, whose post office addresses appear below (hereinafter referred to as ASSIGNOR), has invented certain new and useful improvements in an **OBJECT-BASED NUMERIC-ANALYSIS ENGINE** (hereinafter referred to as THE INVENTION) for which an application for United States Letters Patent was filed **October 15, 1998**, Serial Number: \_\_\_\_\_;

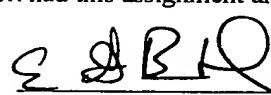
WHEREAS, QED Innovations, whose post office address is **4013 Williamsburg Court, Fairfax Virginia**, (hereinafter referred to as ASSIGNEE), is desirous of acquiring the entire right, title and interest in and to the same in the United States and throughout the world;

NOW, THEREFORE, for good and valuable consideration, receipt of which is hereby acknowledged, we, ASSIGNOR, by these presents do sell, assign and transfer until said ASSIGNEE, the entire right, title and interest in and to said invention and application throughout the United States of America, including any and all United States Letters Patent granted on any division, continuation, continuation-in-part and reissue of said application; and the entire right, title and interest in and to said invention throughout the world, including the right to apply for patents and inventor certificates in respect thereof and to claim priority pursuant to rights accorded ASSIGNOR under the terms of the Paris International Convention and all other available international conventions and treaties; and the entire right, title and interest in and to any and all patents, patents of addition, utility models, patents of importation, revalidation patents and inventor certificates which may be granted throughout the world in respect of said invention.

ALSO, ASSIGNOR hereby agrees to execute any documents that legally may be required in connection with the filing, prosecution and maintenance of said application or any other patent application(s) or inventor certificate(s) in the United States and in foreign countries for said invention, including additional documents that may be required to affirm the rights of ASSIGNEE in and to said invention, all without further consideration. ASSIGNOR also agrees, without further consideration and at ASSIGNEE'S expense, to identify and communicate to ASSIGNEE at ASSIGNEE'S request documents and information concerning the invention that are within ASSIGNOR'S possession or control, and to provide further assurances and testimony on behalf of ASSIGNEE that lawfully may be required of ASSIGNOR in respect of the prosecution, maintenance and defense of any patent application or patent encompassed within the terms of this instrument. ASSIGNOR'S obligations under this instrument shall extend to ASSIGNOR'S heirs, executors, administrators and other legal representatives.

ASSIGNOR hereby authorizes and requests the Commissioner of Patents and Trademarks to issue any and all United States Letters Patent referred to above to ASSIGNEE of the entire right, title and interest in and to the same, for ASSIGNEE'S sole use and behalf; and for the use and behalf of ASSIGNEE'S legal representatives and successors, to the full end of the term for which such Letters Patent may be granted, as fully and entirely as the same would have been held by ASSIGNOR had this assignment and sale not been made.

Inventor: Evan G. Burfield  
Address: 9852 Fairfax Square #225  
Fairfax, Virginia 22031

  
Signature  
Date: 10/15/98  
SSN.: 229-23-9500  
Notarization preferred but not required

State of \_\_\_\_\_  
City/County of \_\_\_\_\_

Before me personally appeared and said \_\_\_\_\_ and  
acknowledges this instrument to be his (her) free act and deed this \_\_\_\_\_ day of \_\_\_\_\_

My commission expires: \_\_\_\_\_

Notary Public

ASSIGNMENT

WHEREAS, Chia Chen Chang, whose post office addresses appear below (hereinafter referred to as ASSIGNOR), has invented certain new and useful improvements in an **OBJECT-BASED NUMERIC-ANALYSIS ENGINE** (hereinafter referred to as THE INVENTION) for which an application for United States Letters Patent was filed **October 15, 1998**, Serial Number: \_\_\_\_\_;

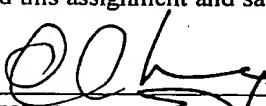
WHEREAS, QED Innovations, whose post office address is **4013 Williamsburg Court, Fairfax Virginia**, (hereinafter referred to as ASSIGNEE), is desirous of acquiring the entire right, title and interest in and to the same in the United States and throughout the world;

NOW, THEREFORE, for good and valuable consideration, receipt of which is hereby acknowledged, we, ASSIGNOR, by these presents do sell, assign and transfer until said ASSIGNEE, the entire right, title and interest in and to said invention and application throughout the United States of America, including any and all United States Letters Patent granted on any division, continuation, continuation-in-part and reissue of said application; and the entire right, title and interest in and to said invention throughout the world, including the right to apply for patents and inventor certificates in respect thereof and to claim priority pursuant to rights accorded ASSIGNOR under the terms of the Paris International Convention and all other available international conventions and treaties; and the entire right, title and interest in and to any and all patents, patents of addition, utility models, patents of importation, revalidation patents and inventor certificates which may be granted throughout the world in respect of said invention.

ALSO, ASSIGNOR hereby agrees to execute any documents that legally may be required in connection with the filing, prosecution and maintenance of said application or any other patent application(s) or inventor certificate(s) in the United States and in foreign countries for said invention, including additional documents that may be required to affirm the rights of ASSIGNEE in and to said invention, all without further consideration. ASSIGNOR also agrees, without further consideration and at ASSIGNEE'S expense, to identify and communicate to ASSIGNEE at ASSIGNEE'S request documents and information concerning the invention that are within ASSIGNOR'S possession or control, and to provide further assurances and testimony on behalf of ASSIGNEE that lawfully may be required of ASSIGNOR in respect of the prosecution, maintenance and defense of any patent application or patent encompassed within the terms of this instrument. ASSIGNOR'S obligations under this instrument shall extend to ASSIGNOR'S heirs, executors, administrators and other legal representatives.

ASSIGNOR hereby authorizes and requests the Commissioner of Patents and Trademarks to issue any and all United States Letters Patent referred to above to ASSIGNEE of the entire right, title and interest in and to the same, for ASSIGNEE'S sole use and behalf; and for the use and behalf of ASSIGNEE'S legal representatives and successors, to the full end of the term for which such Letters Patent may be granted, as fully and entirely as the same would have been held by ASSIGNOR had this assignment and sale not been made.

Inventor: Chia Chen Chang  
Address: 804 Lawton Street  
McLean, Virginia 22101

  
Signature \_\_\_\_\_  
Date: 10/15/98  
SSN.: 578-64-3304  
Notarization preferred but not required

State of \_\_\_\_\_,  
City/County of \_\_\_\_\_

Before me personally appeared and said \_\_\_\_\_, and  
acknowledges this instrument to be his (her) free act and deed this \_\_\_\_\_  
day of \_\_\_\_\_

My commission expires: \_\_\_\_\_

Notary Public

## ASSIGNMENT

WHEREAS, Matthew Eichler, whose post office addresses appear below (hereinafter referred to as ASSIGNOR), has invented certain new and useful improvements in an **OBJECT-BASED NUMERIC-ANALYSIS ENGINE** (hereinafter referred to as THE INVENTION) for which an application for United States Letters Patent was filed October 15, 1998, Serial Number: \_\_\_\_\_.

WHEREAS, QED Innovations, whose post office address is 4013 Williamsburg Court, Fairfax Virginia, (hereinafter referred to as ASSIGNEE), is desirous of acquiring the entire right, title and interest in and to the same in the United States and throughout the world;

NOW, THEREFORE, for good and valuable consideration, receipt of which is hereby acknowledged, we, ASSIGNOR, by these presents do sell, assign and transfer until said ASSIGNEE, the entire right, title and interest in and to said invention and application throughout the United States of America, including any and all United States Letters Patent granted on any division, continuation, continuation-in-part and reissue of said application; and the entire right, title and interest in and to said invention throughout the world, including the right to apply for patents and inventor certificates in respect thereof and to claim priority pursuant to rights accorded ASSIGNOR under the terms of the Paris International Convention and all other available international conventions and treaties; and the entire right, title and interest in and to any and all patents, patents of addition, utility models, patents of importation, revalidation patents and inventor certificates which may be granted throughout the world in respect of said invention.

ALSO, ASSIGNOR hereby agrees to execute any documents that legally may be required in connection with the filing, prosecution and maintenance of said application or any other patent application(s) or inventor certificate(s) in the United States and in foreign countries for said invention, including additional documents that may be required to affirm the rights of ASSIGNEE in and to said invention, all without further consideration. ASSIGNOR also agrees, without further consideration and at ASSIGNEE'S expense, to identify and communicate to ASSIGNEE at ASSIGNEE'S request documents and information concerning the invention that are within ASSIGNOR'S possession or control, and to provide further assurances and testimony on behalf of ASSIGNEE that lawfully may be required of ASSIGNOR in respect of the prosecution, maintenance and defense of any patent application or patent encompassed within the terms of this instrument. ASSIGNOR'S obligations under this instrument shall extend to ASSIGNOR'S heirs, executors, administrators and other legal representatives.

ASSIGNOR hereby authorizes and requests the Commissioner of Patents and Trademarks to issue any and all United States Letters Patent referred to above to ASSIGNEE of the entire right, title and interest in and to the same, for ASSIGNEE'S sole use and behalf; and for the use and behalf of ASSIGNEE'S legal representatives and successors, to the full end of the term for which such Letters Patent may be granted, as fully and entirely as the same would have been held by ASSIGNOR had this assignment and sale not been made.

Inventor: **Matthew Eichler**  
Address: **2629 Washington Blvd.,**  
**Arlington, Virginia 22201**

Mark A. E.

Signature

Date: 10/15/98

SSN: 109-50-5191

Notarization preferred but not required

*State of* \_\_\_\_\_  
*City/County of* \_\_\_\_\_

Before me personally appeared and said \_\_\_\_\_, and  
acknowledges this instrument to be his (her) free act and deed this \_\_\_\_\_ day of \_\_\_\_\_

*My commission expires:*

ASSIGNMENT

WHEREAS, Mark Drissel, whose post office addresses appear below (hereinafter referred to as ASSIGNOR), has invented certain new and useful improvements in an **OBJECT-BASED NUMERIC-ANALYSIS ENGINE** (hereinafter referred to as THE INVENTION) for which an application for United States Letters Patent was filed **October 15, 1998**, Serial Number: \_\_\_\_\_;

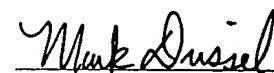
WHEREAS, QED Innovations, whose post office address is **4013 Williamsburg Court, Fairfax Virginia**, (hereinafter referred to as ASSIGNEE), is desirous of acquiring the entire right, title and interest in and to the same in the United States and throughout the world;

NOW, THEREFORE, for good and valuable consideration, receipt of which is hereby acknowledged, we, ASSIGNOR, by these presents do sell, assign and transfer until said ASSIGNEE, the entire right, title and interest in and to said invention and application throughout the United States of America, including any and all United States Letters Patent granted on any division, continuation, continuation-in-part and reissue of said application; and the entire right, title and interest in and to said invention throughout the world, including the right to apply for patents and inventor certificates in respect thereof and to claim priority pursuant to rights accorded ASSIGNOR under the terms of the Paris International Convention and all other available international conventions and treaties; and the entire right, title and interest in and to any and all patents, patents of addition, utility models, patents of importation, revalidation patents and inventor certificates which may be granted throughout the world in respect of said invention.

ALSO, ASSIGNOR hereby agrees to execute any documents that legally may be required in connection with the filing, prosecution and maintenance of said application or any other patent application(s) or inventor certificate(s) in the United States and in foreign countries for said invention, including additional documents that may be required to affirm the rights of ASSIGNEE in and to said invention, all without further consideration. ASSIGNOR also agrees, without further consideration and at ASSIGNEE's expense, to identify and communicate to ASSIGNEE at ASSIGNEE's request documents and information concerning the invention that are within ASSIGNOR's possession or control, and to provide further assurances and testimony on behalf of ASSIGNEE that lawfully may be required of ASSIGNOR in respect of the prosecution, maintenance and defense of any patent application or patent encompassed within the terms of this instrument. ASSIGNOR's obligations under this instrument shall extend to ASSIGNOR's heirs, executors, administrators and other legal representatives.

ASSIGNOR hereby authorizes and requests the Commissioner of Patents and Trademarks to issue any and all United States Letters Patent referred to above to ASSIGNEE of the entire right, title and interest in and to the same, for ASSIGNEE's sole use and behalf; and for the use and behalf of ASSIGNEE's legal representatives and successors, to the full end of the term for which such Letters Patent may be granted, as fully and entirely as the same would have been held by ASSIGNOR had this assignment and sale not been made.

Inventor: **Mark Drissel**  
Address: **6314 Kiteline Court**  
**Columbia, Maryland 21044**

  
Signature \_\_\_\_\_  
Date: **10/15/98**  
SSN.: \_\_\_\_\_  
Notarization preferred but not required

**State of** \_\_\_\_\_  
**City/County of** \_\_\_\_\_

*Before me personally appeared and said \_\_\_\_\_, and  
acknowledges this instrument to be his (her) free act and deed this \_\_\_\_\_ day of*

*My commission expires: \_\_\_\_\_*

*Notary Public*

## ASSIGNMENT

WHEREAS, Richard Garrett, whose post office addresses appear below (hereinafter referred to as ASSIGNOR), has invented certain new and useful improvements in an **OBJECT-BASED NUMERIC-ANALYSIS ENGINE** (hereinafter referred to as THE INVENTION) for which an application for United States Letters Patent was filed **October 15, 1998**, Serial Number: \_\_\_\_\_;

WHEREAS, QED Innovations, whose post office address is **4013 Williamsburg Court, Fairfax Virginia** (hereinafter referred to as ASSIGNEE), is desirous of acquiring the entire right, title and interest in and to the same in the United States and throughout the world;

NOW, THEREFORE, for good and valuable consideration, receipt of which is hereby acknowledged; we, ASSIGNOR, by these presents do sell, assign and transfer until said ASSIGNEE, the entire right, title and interest in and to said invention and application throughout the United States of America, including any and all United States Letters Patent granted on any division, continuation, continuation-in-part and reissue of said application; and the entire right, title and interest in and to said invention throughout the world, including the right to apply for patents and inventor certificates in respect thereof and to claim priority pursuant to rights accorded ASSIGNOR under the terms of the Paris International Convention and all other available international conventions and treaties; and the entire right, title and interest in and to any and all patents, patents of addition, utility models, patents of importation, revalidation patents and inventor certificates which may be granted throughout the world in respect of said invention.

ALSO, ASSIGNOR hereby agrees to execute any documents that legally may be required in connection with the filing, prosecution and maintenance of said application or any other patent application(s) or inventor certificate(s) in the United States and in foreign countries for said invention, including additional documents that may be required to affirm the rights of ASSIGNEE in and to said invention, all without further consideration. ASSIGNOR also agrees, without further consideration and at ASSIGNEE'S expense, to identify and communicate to ASSIGNEE at ASSIGNEE'S request documents and information concerning the invention that are within ASSIGNOR'S possession or control, and to provide further assurances and testimony on behalf of ASSIGNEE that lawfully may be required of ASSIGNOR in respect of the prosecution, maintenance and defense of any patent application or patent encompassed within the terms of this instrument. ASSIGNOR'S obligations under this instrument shall extend to ASSIGNOR'S heirs, executors, administrators and other legal representatives.

ASSIGNOR hereby authorizes and requests the Commissioner of Patents and Trademarks to issue any and all United States Letters Patent referred to above to ASSIGNEE of the entire right, title and interest in and to the same, for ASSIGNEE'S sole use and behalf; and for the use and behalf of ASSIGNEE'S legal representatives and successors, to the full end of the term for which such Letters Patent may be granted, as fully and entirely as the same would have been held by ASSIGNOR had this assignment and sale not been made.

Inventor: Richard Garrett  
Address: 9852 Fairfax Square #225  
Fairfax, Virginia 22031

Richard Garrett  
Signature  
Date: OCT. 15, 1998  
SSN.: 330-50-9370  
Notarization preferred but not required

State of \_\_\_\_\_  
City/County of \_\_\_\_\_

Before me personally appeared and said \_\_\_\_\_, and  
acknowledges this instrument to be his (her) free act and deed this \_\_\_\_\_ day of \_\_\_\_\_

My commission expires: \_\_\_\_\_

Notary Public

## ASSIGNMENT

WHEREAS, Robert Groat, whose post office addresses appear below (hereinafter referred to as ASSIGNOR), has invented certain new and useful improvements in an **OBJECT-BASED NUMERIC-ANALYSIS ENGINE** (hereinafter referred to as THE INVENTION) for which an application for United States Letters Patent was filed **October 15, 1998**; Serial Number: \_\_\_\_\_;

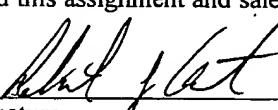
WHEREAS, QED Innovations, whose post office address is **4013 Williamsburg Court, Fairfax Virginia**, (hereinafter referred to as ASSIGNEE), is desirous of acquiring the entire right, title and interest in and to the same in the United States and throughout the world;

NOW, THEREFORE, for good and valuable consideration, receipt of which is hereby acknowledged, we, ASSIGNOR, by these presents do sell, assign and transfer until said ASSIGNEE, the entire right, title and interest in and to said invention and application throughout the United States of America, including any and all United States Letters Patent granted on any division, continuation, continuation-in-part and reissue of said application; and the entire right, title and interest in and to said invention throughout the world, including the right to apply for patents and inventor certificates in respect thereof and to claim priority pursuant to rights accorded ASSIGNOR under the terms of the Paris International Convention and all other available international conventions and treaties; and the entire right, title and interest in and to any and all patents, patents of addition, utility models, patents of importation, revalidation patents and inventor certificates which may be granted throughout the world in respect of said invention.

ALSO, ASSIGNOR hereby agrees to execute any documents that legally may be required in connection with the filing, prosecution and maintenance of said application or any other patent application(s) or inventor certificate(s) in the United States and in foreign countries for said invention, including additional documents that may be required to affirm the rights of ASSIGNEE in and to said invention, all without further consideration. ASSIGNOR also agrees, without further consideration and at ASSIGNEE's expense, to identify and communicate to ASSIGNEE at ASSIGNEE's request documents and information concerning the invention that are within ASSIGNOR'S possession or control, and to provide further assurances and testimony on behalf of ASSIGNEE that lawfully may be required of ASSIGNOR in respect of the prosecution, maintenance and defense of any patent application or patent encompassed within the terms of this instrument. ASSIGNOR'S obligations under this instrument shall extend to ASSIGNOR'S heirs, executors, administrators and other legal representatives.

ASSIGNOR hereby authorizes and requests the Commissioner of Patents and Trademarks to issue any and all United States Letters Patent referred to above to ASSIGNEE of the entire right, title and interest in and to the same, for ASSIGNEE'S sole use and behalf; and for the use and behalf of ASSIGNEE's legal representatives and successors, to the full end of the term for which such Letters Patent may be granted, as fully and entirely as the same would have been held by ASSIGNOR had this assignment and sale not been made.

Inventor: Robert Groat  
Address: 45862 Aberdeen Lane  
Valley Lee, Maryland 20692

  
Signature \_\_\_\_\_  
Date: 10/15/98  
SSN: 25808492  
Notarization preferred but not required

State of \_\_\_\_\_  
City/County of \_\_\_\_\_

Before me personally appeared and said \_\_\_\_\_, and  
acknowledges this instrument to be his (her) free act and deed this \_\_\_\_\_ day of

\_\_\_\_\_  
Notary Public

My commission expires: \_\_\_\_\_